

PRODROMUS BRYOLOGIAE ANDINAE I.

THE POLYTRICHUM JUNIPERINUM GROUP IN BOLIVIA--REVIVAL OF
POLYTRICHUM ARISTIFLORUM MITT.*

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Abstract. Polytrichum aristiflorum Mitt., usually considered a synonym of Polytrichum juniperinum Hedw., is regarded as an accepted species. Differences between the two taxa are discussed.

This is the first in an ongoing series of short papers which will discuss studies of "problem" groups occurring in the Central Andean region of South America, as well as other facets of Andean bryology. These preliminary contributions will be in anticipation of a Handbook of Bolivian Mosses.

Polytrichum juniperinum Hedw. and related species of Polytrichum may be easily recognized in the field by the widely involute margins of the leaf blade; the strongly involute portion of the leaf is made up of transversely elongate cells. Messmer and Frye (1947) reduced all known names of this group in North and South America to synonyms of P. juniperinum except for P. trachynotum C. Muell., a species found in Tierra del Fuego and Mexico. In 1979, I collected 31 specimens of this group from altitudes ranging from 1400 m. to 5000 m. in Bolivia. Based upon studies of these collections I believe the name Polytrichum aristiflorum Mitt. refers to a recognizable species and should be revived.

Mitten (1869) separated P. aristiflorum from other members of the group by referring all plants with elongate-oblong leaf bases to this species. While there is a strong tendency for P. aristiflorum to produce this sort of leaf blade, as opposed to the wider obovate or oblong leaf blade in P. juniperinum, there are other clearer ways to separate the species.

P. aristiflorum is confined to lower and middle altitudes, growing from 1400 m. to 3250 m. at the upper limit of Bolivian forests. It produces stems of 10 to over 20 cm. in length. When dry, the leaves are yellowish-green, laxly arranged, somewhat crisped and spreading when dry. When moistened they are

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squarrose from an erect, tightly appressed base, and the bright yellow leaf bases are clearly visible. The leaf blades are narrowly subulate with a conspicuous yellow costal region and produce long, thin aristae which are very pronounced in the upper leaves. The plants are usually fertile with the fruit ripening towards the end of the rainy season, i.e., in February and March.

P. juniperinum, on the other hand, is confined to high altitude areas. Collections were made at altitudes ranging from 4100 m. to 5000 m. These plants show the same habit as I am accustomed to see in Alaska. The stems are at most 3-5 cm. in height. When dry, leaves are brown to brown-orange, tightly appressed to the stem and not at all crisped. When moistened they are ca. 30°-60° spreading from a less appressed base. The leaf bases are orange and not visible. The leaf blades are shorter and wider, the yellow costal region is rarely conspicuous and aristae, when present, are short and thick. Though rarely in fruit, two collections were made at 4400 m. with fruit not yet ripe on 5 June. Projecting ahead, we may assume that these would be ripe towards the end of the dry season.

In both species, tomentum is produced from the shoulders of the leaf base. In P. aristiflorum the upper leaves appear to have cilia arising from this area. Further down the stem the leaf blades are worn away, but the leaf bases remain and are covered with white tomentum. P. juniperinum seldom reaches the length necessary to produce this phenomenon or at least to any marked extent.

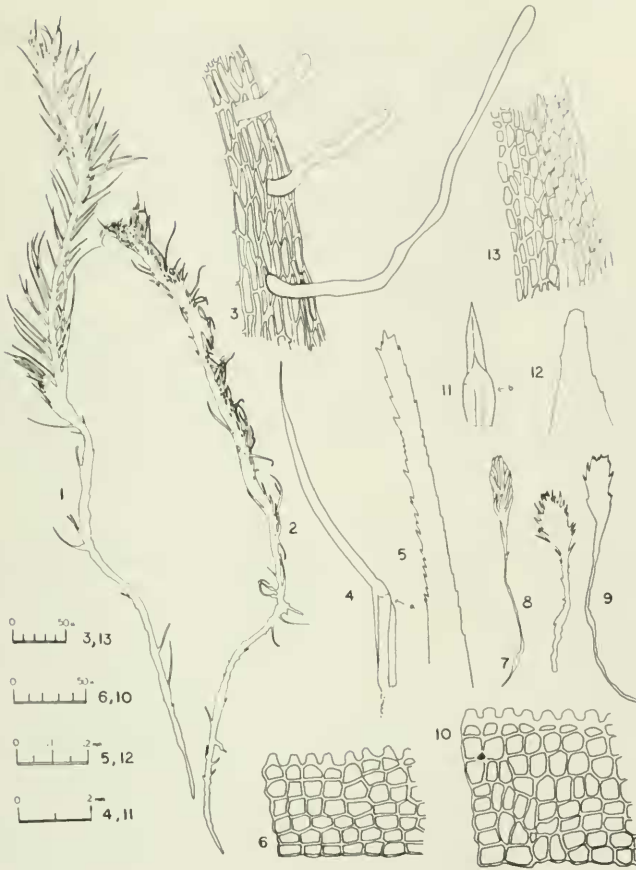
At middle altitudes 4 intermediates were collected. These plants tended to be closer to P. aristiflorum, but when dry the leaves were appressed to the stem. A specimen from this group was collected at 3920 m. with fruit ripe on 27 February. Another, from 4140 m., had fruit ripe on 4 April. It is possible, perhaps probable, that the two species are capable of interbreeding in the center of their altitudinal zonation.

No collections of the P. juniperinum group other than these two species were found.

Polytrichum antillarum Rich., nom. illeg., seems to be identical to P. aristiflorum.

Literature Cited

- Messmer, L.W. & T.C. Frye. 1947. The Polytrichum juniperinum group between South America and the United States. Bryologist 50: 259-268.
- Mitten, W. 1869. Musci austro-americi. Journ. Linn. Soc. London, Bot. 12: 619-622.



FIGURES 1-6 (left) Polytrichum aristiflorum Mitt.-- 1. Habit of wet plant.-- 2. Habit of dry plant.-- 3. Cells of leaf shoulder which produce tomentum (from point a in fig. 4).-- 4. Leaf.-- 5. Arista.-- 6. Lamella.

FIGURES 7-13 (right) Polytrichum juniperinum Hedw.-- 7. Habit of dry plant.-- 8&9. Habit of wet plants.-- 10. Lamella.-- 11. Leaf.-- 12. Arista.-- 13. Cells of leaf shoulder (from point b in fig. 11).-----Figures of Polytrichum aristiflorum from Lewis 79-1751, Depto. La Paz, Bolivia, ca. 1400 M.

Figures of Polytrichum juniperinum Hedw. from Lewis 79-1905, Depto. La Paz, Bolivia, ca. 4800 M. Note: In this illustration P. juniperinum shows decolorate cells along margin of leaf shoulder (f. 13) and lamella 7-8 cells high (f. 10). These characters are at present not known to be constant and need further study.